<u>AMENDMENTS TO THE CLAIMS</u>

This listing of claims will replace all prior versions and listings of claims in the application.

1   1.   (Original) A method of determining data placement for a distributed storage

2   system comprising the steps of:

3   selecting a heuristic class which meets a performance requirement and

4   which provides a replication cost that is within an allowable limit of a

5   minimum replication cost; and

6   instantiating a data placement heuristic selected from a range of data

7   placement heuristics according to the heuristic class.

1   2.   (Original) The method of claim 1 wherein the performance requirement comprises

2   a bi-modal performance metric.

1   3.   (Original) The method of claim 2 wherein the bi-modal performance metric

2   comprises a criterion and a ratio of successful requests to total requests.

1   4.   (Original) The method of claim 1 wherein the data placement heuristic comprises

2   a computer implemented technique of placing data objects onto nodes of the

3   distributed storage system.

1   5.   (Original) The method of claim 4 further comprising the step of evaluating a

2   placement of the data objects.

1   6.   (Currently amended) The method of claim 5 wherein the step of evaluating the

2   data placement heuristic provides a performance result and a cost result for the

3   system configuration and a~~the~~ workload.

1   7.   (Original) The method of claim 5 wherein the step of instantiating the data

2   placement heuristic comprises simulating an instantiation of the data placement

3   heuristic.

1   8.   (Currently amended) The method of claim 7 further comprising the steps of:
2   selecting a second heuristic class for <u>a</u>~~the~~ workload and a second system
3   configuration;
4   instantiating a second data placement heuristic according to the second
5   heuristic class; and
6   evaluating a second placement of the data objects made according to the
7   second data placement heuristic.

1   9.   (Original) The method of claim 7 further comprising the steps of:
2   selecting a second heuristic class for the system configuration and a
3   second workload;
4   instantiating a second data placement heuristic according to the second
5   heuristic class; and
6   evaluating a second placement of the data objects made according to the
7   second data placement heuristic.

1   10.   (Original) The method of claim 5 wherein the step of instantiating the data
2   placement heuristic comprises instantiating the data placement heuristic on an actual
3   distributed storage system operating with an actual workload.

1   11.   (Original) The method of claim 10 further comprising the steps of:
2   selecting a second heuristic class for the system configuration and the
3   actual workload;
4   instantiating a second data placement heuristic according to the second
5   heuristic class; and
6   evaluating a second placement of the data objects made according to the
7   second data placement heuristic.

1   12.   (Original) The method of claim 1 wherein the performance requirement comprises

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2 a data access latency.

1 13. (Original) The method of claim 1 wherein the performance requirement comprises
2 an average data access latency.

1 14. (Original) The method of claim 1 wherein the performance requirement comprises
2 a data access bandwidth.

1 15. (Original) The method of claim 1 wherein the performance requirement comprises
2 a data update time.

1 16. (Original) The method of claim 1 wherein the step of selecting the heuristic class
2 determines a plurality of heuristic parameters.

1 17. (Original) The method of claim 16 wherein the step of instantiating the data
2 placement heuristic instantiates the data placement heuristic according to the heuristic
3 parameters.

1 18. (Original) The method of claim 17 wherein the step of instantiating the data
2 placement heuristic sets other heuristic parameters to defaults.

1 19. (Original) The method of claim 1 wherein the replication cost comprises data
2 storage cost.

1 20. (Original) The method of claim 1 wherein the replication cost comprises a replica
2 creation cost.

1 21. (Original) The method of claim 20 wherein the replication creation cost comprises
2 a network bandwidth cost for transferring replicas and replica changes.

1 22. (Original) The method of claim 20 wherein the replica creation cost comprises a

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2   system load cost for running the data placement heuristic.

1   23.   (Original) A method of determining data placement for a distributed storage

2   system comprising the steps of:

3   selecting a heuristic class which meets a performance requirement and

4   which provides a replication cost that is within an allowable limit of a

5   minimum replication cost;

6   instantiating a data placement heuristic selected from a range of data

7   placement heuristics according to the heuristic class; and

8   evaluating a placement of data objects onto nodes of the distributed

9   storage system made according to the data placement heuristic.

1   24.   (Original) The method of claim 23 wherein the step of instantiating the data

2   placement heuristic comprises simulating instantiation of the data placement

3   heuristic.

1   25.   (Original) The method of claim 23 wherein the step of instantiating the data

2   placement heuristic comprises instantiating the data placement heuristic on an actual

3   distributed storage system operating with an actual workload.

1   26.   (Original) A method of determining data placement for a distributed storage

2   system comprising the steps of:

3   selecting a heuristic class which meets a performance requirement and

4   which provides a replication cost that is within an allowable limit of a

5   minimum replication cost;

6   instantiating a data placement heuristic selected from a range of data

7   placement heuristics according to the heuristic class;

8   evaluating a placement of data objects onto nodes of the distributed

9   storage system made according to the data placement heuristic; and

10   iteratively performing the steps of selecting the heuristic class,

11   instantiating the data placement heuristic, and evaluating the placement of the

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12   data objects.

1   27.   (Original) The method of claim 26 wherein second and subsequent performance
2   of the steps of selecting the heuristic class, instantiating the data placement heuristic,
3   and evaluating the placement of the data objects seeks to improve the data placement
4   heuristic.

1   28.   (Original) The method of claim 26 wherein second and subsequent performance
2   of the steps of selecting the heuristic class, instantiating the data placement heuristic,
3   and evaluating the placement of the data objects seeks to modify the data placement
4   heuristic to account for a changing workload.

1   29.   (Original) A computer readable memory comprising computer code for
2   implementing a method of determining data placement for a distributed storage
3   system, the method of determining the data placement comprising the steps of:
4   selecting a heuristic class which meets a performance requirement and
5   which provides a replication cost that is within an allowable limit of a
6   minimum replication cost; and
7   instantiating a data placement heuristic selected from a range of data
8   placement heuristics according to the heuristic class.

1   30.   (Original) A computer readable memory comprising computer code for
2   implementing a method of determining data placement for a distributed storage
3   system, the method of determining the data placement comprising the steps of:
4   selecting a heuristic class which meets a performance requirement and
5   which provides a replication cost that is within an allowable limit of a
6   minimum replication cost;
7   instantiating a data placement heuristic selected from a range of data
8   placement heuristics according to the heuristic class; and
9   evaluating a placement of data objects onto nodes of the distributed
10   storage system made according to the data placement heuristic.

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1   31.   (Original) A computer readable memory comprising computer code for

2   implementing a method of determining data placement for a distributed storage

3   system, the method of determining the data placement comprising the steps of:

4   selecting a heuristic class which meets a performance requirement and

5   which provides a replication cost that is within an allowable limit of a

6   minimum replication cost;

7   instantiating a data placement heuristic selected from a range of data

8   placement heuristics according to the heuristic class;

9   evaluating a placement of data objects onto nodes of the distributed

10   storage system made according to the data placement heuristic; and

11   iteratively performing the steps of selecting the heuristic class,

12   instantiating the data placement heuristic, and evaluating the placement of the

13   data objects.

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